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EXAMINER

THEODORE, MAGALI P

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,074	Applicant(s) PEDERSEN ET AL.	
	Examiner Magali P. Théodore	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/25/2005, 5/30/2006</u> | 6) <input type="checkbox"/> Other: _____ |

Claim Objections

1. Claims 1, 7, 16-17 and 37-40 are objected to because of the following informalities: contains plural elements but is printed as a monolithic paragraph. Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP 608.01(i)-(p). Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 40 recites "the conveyor means" and "the ribbon." Claim 40 depends on claim 36, which depends on claim 1. Neither of claims 1 or 36 recites a conveyor means or a ribbon. Since claim 37 recites these limitations, for the sake of compact prosecution, claim 40 has been interpreted as if it depended not on claim 36 but on claim 37.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 7 and 14-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Face, Jr. et al. (US 5,837,298, "Face").

Regarding **claim 1**, Face teaches spreading a layer of concrete (1:24-24) on a substrate. Concrete inherently contains water, a population of aggregate particles and a population of cement particles that fit between and bind the aggregates together. Face teaches covering the paste's surface with a flexible membrane (5:38-39, figure 1:10b) having an upper-surface and a smooth under-surface, such that the latter touches and conforms to the paste's surface and vibrating the article's membrane-covered area such that vibration penetrates to the paste's surface (3:57-59). Since cement hardens upon drying, hardening is inherent. Once the membrane has been applied, one has only three options: removing the membrane before the brick has hardened, removing the membrane after the brick has partially hardened or leaving the membrane on until the brick has fully hardened. Therefore, the method inherently requires either removing the membrane from the preform before hardening it or at least partially hardening the preform with the membrane in place. Face teaches partially

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hardening the article with the membrane in place and then removing the membrane.

Face explains that the vibration "causes air and water to rise to the surface of the concrete creating a layer of water on the surface of the concrete" (3:57-61). The removal of air and water from the mixture inherently hardens the underlying concrete. Therefore, the article has been partially hardened during the operation, while the membrane is still in place.

Regarding **claim 7**, Face teaches spreading the paste by pressing a trowel into it (1:30-40). The working end of the trowel is its membrane (figure 1:10b), and the paste spreads between the membrane and the shaped mass.

Regarding **claim 14**, Face teaches degassing the paste layer (driving out air, 1:34).

Regarding **claim 15**, Face teaches partially hardening the article with the membrane in place and then removing the membrane. Face explains that the vibration "causes air and water to rise to the surface of the concrete creating a layer of water on the surface of the concrete" (3:57-61). The removal of air and water from the mixture inherently hardens the underlying concrete. Therefore, the article has been partially hardened during the operation, while the membrane is still in place.

Regarding **claim 16**, Face teaches vibrating the paste with a vibratable plate element (figure1 part 14). Since an article is formed with a float (1:29-33) has flat surface, the vibrating plate (figure1 part 14) matches the contours of the article. The plate vibrates while maintaining pressure contact between it and the article's

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membrane-covered area, such that vibration is transmitted from the vibratable plate element through the membrane to paste's surface (5:38-41, col 19-22).

Regarding **claim 17**, Face teaches that the membrane (figure 1:10b) is between the paste and the vibratable plate (figure1:14) that the vibrating head (figure 1:12) makes the vibratable plate vibrate.

Regarding **claim 18**, Face teaches that the vibratable head (figure1:12) touches the vibratable plate (figure1:14) from a side not touching the article's membrane-covered surface; the vibratable head element traversing an area of that side and causing the vibratable plate to vibrate.

Regarding **claim 19**, Face teaches that the vibratable plate element (figure1 part 14) is rectangular with uniform transverse cross sectional profile, the vibratable head element is contoured to match that profile, and the head moves longitudinally along the surface of the plate (9:50-51).

Regarding **claim 20**, Face teaches that the article's membrane covered surface area of the article vibrates along an axis perpendicular its surface (9:50-54).

Regarding **claim 21**, Face teaches vibration at frequencies between 50 and 500 Hz (4:34), which includes frequencies greater than 10 Hz.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 2-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Face as applied to claim 1 above and further in view of Weisweiler et al. (US 4,986,744, "Weisweiler").

Regarding **claims 2-4**, Face does not name either the substrate or the article being made. However, Weisweiler teaches spreading concrete (4:21-23) on a partially hardened cementitious mass (green concrete, 4: 29-34) to make a weather-resistant or

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color fast roofing tile (1:10-15). Therefore it would have been obvious to one of ordinary skill in the art to use a green concrete tile blank as the substrate in the method taught by Face because Weisweiler teaches using that as the base to make a concrete-laminated roofing tile with improved weather resistance and color fastness.

Regarding **claim 9**, Face does not teach preparing the substrate to accept the paste. However, Weisweiler running a plate across (figure 1:35) to the substrate to make it smooth enough to receive the paste (4:5-9). Therefore it would have been obvious to one of ordinary skill in the art to smoothen the substrate before applying the paste in Face's method because Weisweiler teaches doing so to facilitate bonding.

5. Claims 5-6, 10, 12 and 22-29 rejected under 35 U.S.C. 103(a) as being unpatentable over Face as applied to claim 1 and 16 above.

Regarding **claims 5-6**, Face does not specify which way the substrate is oriented. However, the substrate must be oriented either horizontally, vertically or diagonally with respect to those planes. Given that there are only three options (and the awkwardness of orienting the substrate on an incline), it would have been obvious to one of ordinary skill in the art to orient the substrate either horizontally or vertically in using Face's method.

Regarding **claim 10**, Face teaches that the membrane is plastic (polyvinyl chloride, 5:30). Face et al. do not specify that the vibratable plate is either plastic or metal. However, Face et al. describes the vibrating plate as a "small weight," whose mass, at a given frequency, controls the plate's momentum (6:38-44). Since metals are

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the heaviest elements, it would be only logical to use a metal to form a weight of small size. Therefore, it would be obvious to one of ordinary skill in the art to use metal to form the vibratable plate taught by Face because these plate is also a weight and metals are the heaviest elements.

Regarding **claim 12**, concrete inherently contains a first population of binding cement particles and a second population of non-binding aggregate particles.

Regarding **claims 22-25** and **28**, Face teaches controlling vibrational frequency (2:62-col 3:3) and amplitude (9:53-56) with the construction and configuration of the apparatus. The redistribution of the mixture's components to any measurable degree inherently requires finite amounts of time and mechanical energy. The depth to which the article's density is increased inherently depends on the frequency, amplitude and duration of the vibrations applied. Therefore it would have been obvious to one of ordinary skill in the art to optimize these parameters based on the desired outcome in the product. Optimizing a result-effective parameter known in the art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding **claims 26-27**, Face teaches vibration at frequencies between 50 and 500 Hz (4:34), which includes the claimed ranges. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. See MPEP 2144.05 [R-5], In re Wertheim, 541 F.2d 257, 191USPQ 90 (CCPA 1976). Therefore, it would have been obvious to one of ordinary

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skill in the art to use the claimed ranges because Face teaches a range that contains them.

Alternatively, it would have been obvious to one of ordinary skill in the art to optimize the frequency because Face teaches controlling vibrational frequency (2:62-col 3:3) with the construction and configuration of the apparatus. The redistribution of the mixture's components to any measurable degree inherently requires finite amounts of time and mechanical energy. The depth to which the article's density is increased inherently depends on the frequency, amplitude and duration of the vibrations applied. Therefore it would have been obvious to one of ordinary skill in the art to optimize these parameters based on the desired outcome in the product. Optimizing a result-effective parameter known in the art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding **claim 29**, Face teaches varying the vibrational frequency (4:33-36).

1. Claims 8, 11, 13 and 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Face as applied to claim 1 above and further in view of Bache (US 4,588,443).

Regarding **claim 8**, Face does not teach using rolling pressure of a pressure drop to press the membrane into the paste. However, Bache teaches using a specially shaped roller (figures 30) to corrugate concrete. These rollers present an effective alternative to pressing mechanism provided for by Face's apparatus. Therefore, it would have been obvious to one of ordinary skill in the art to use rolling pressure to

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press the Face's membrane into the paste because Bache teaches an equally effective alternative.

Regarding **claims 11 and 13**, concrete inherently contains two populations of particles: population of aggregate particles and a population of cement particles that fit between and bind the aggregates together. Face does not disclose particle sizes. However, Bache teaches using a bimodal distribution of particle sizes to make strong, dense materials through high loading (2:7-15). Bache teaches two things: first, that size matters and, second, that the submicron and micron ranges are appropriate for making concrete. Therefore, it would have been appropriate to one of ordinary skill in the art to optimize the particle sizes in the concrete taught by Face to form a bimodal distribution because Bache teaches doing so to enhance the article's strength and density. Furthermore, it would have been obvious to optimize the particle sizes because Bache establishes particle sizes and their differences as result effective parameters. Optimizing a result-effective parameter known in the art does not impart patentable distinction to an invention. See MPEP 2144.05 [R-5] II, in re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Finally, optimizing in the claimed ranges would have been obvious to one of ordinary skill in the art because Bache discloses overlapping ranges. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. See MPEP 2144.05 [R-5], In re Wertheim, 541 F.2d 257, 191USPQ 90 (CCPA 1976).

Regarding **claim 34**, Face teaches the use of cement (1:22). Face does not teach the use of microsilica. However, Bache balancing cement with silica (3:61-col

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4:1) to control the mixture's reactivity. Microsilica (8:27-34) is specified for its utility in forming high-density composites (2:6-14). Therefore, it would be obvious to one of ordinary skill in the art to combine cement and microsilica in the concrete taught by Face because Bache teaches that this combination makes a high-density composite whose reactivity can be controlled by the ratio of silica to cement.

2. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Face as applied to claim 16 above and further in view of Kumagawa et al. (US 6,079,900, "Kumagawa").

Regarding **claims 30-31**, Face does not teach applying a dry particulate to the article before applying the membrane. However, Kumagawa teaches applying polymer (plastic and resin) chips to the surface of a permeable concrete block as a step in forming an elastic and permeable composite (abstract). Therefore, it would be obvious to one of ordinary skill in the art to lay plastic particles on the concrete body taught by Face because Kumagawa teaches laying dry plastic and resin particles on a concrete surface to lend elasticity to the final product.

3. Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Face as applied to claim 1 above and further in view of Timke (US 3,627,861).

Regarding **claims 32-33**, Face does not teach using a relief pattern. However, Timke teaches placing an insert with a relief pattern between a molding cavity and its charge and then compressing the mixture to form a patterned ceramic tile (abstract:1-8),

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using a tool (figure 1:32) to press the pattern into the ceramic. Therefore, it would be obvious to one of ordinary skill in the art to use a tool press a relief pattern against the membrane taught by Face because Timke teaches using a relief-patterned insert in making compression-molded ceramic tiles.

4. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Face as applied to claim 1 above and further in view Haddock (US 431,842).

Regarding **claim 35**, Face does not teach using sand. However, Haddock teaches combining sand with cement to limit the finished product's absorption of water (1:24-28, 47-49). Therefore, it would be obvious to one of ordinary skill in the art to add sand to the mixture taught by Face because Haddock teaches using sand to control the final product's retention of water.

6. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Face as applied to claim 1 above, and further in view of Shaw et al. (US 4,748,788, "Shaw").

Regarding **claim 36** Face does not teach post-treatment of the surface paste. However, Shaw teaches applying an acid wash to a concrete surface to improve its appearance by exposing the aggregate (Abstract, last 6 lines). Therefore, it would have been obvious to one of ordinary skill in the art to subject the article made by Face to an acid wash because Shaw teaches doing so to make it look nice.

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7. Claims 37-38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Face as applied to claim 1 above, and further in view of Baker et al. (US 4,695,418, "Baker").

Regarding **claim 37**, Face does not teach making tiles. However, Baker teaches making concrete roof tiles (1:9). It would have been obvious to one of ordinary skill in the art to combine the steps of concrete-finishing taught by Face with the tile-making steps taught by Baker because both methods are known in the art and one of ordinary skill in the art would have known that they could be combined with predictable results and a reasonable expectation of success.

Baker teaches forming roof tiles (1:9) by extruding concrete from the orifice (beneath figure 3b:76) the onto conveyor (1:38-42), which carries the extruded mass as a ribbon (figure 3b:10) away from the extrusion orifice, the ribbon having a lower and an upper surface, the lower surface in contact with the conveyor means, the conveyor means passing the ribbon under a slipper (figure 3b:79) such that the lower surface of the plate touches the upper surface of the ribbon. Baker teaches cutting the flattened ribbon into roofing tiles (2:25-28). Baker uses this method to make shaped or Roman tiles because it ensures uniformity of shape across the tile's entire length (1:35-37). Therefore, it would be obvious to one of ordinary skill in the art to use the extruding, smoothing and cutting steps taught by Baker to make tiles because Baker teaches its utility in forming evenly shaped tiles.

Regarding **claim 38**, Face does not teach pallets. However, Baker teaches extruding the ribbon directly onto pallets (figure 1 parts P) placed longitudinally on a

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conveyor and cutting the tiles across the width of the ribbon to the size of the pallets (1:38-43). The conveyor transports the pallets, which provide a template for cutting the tiles (2:26-32). Therefore, it would be obvious to one of ordinary skill in the art to cut tiles on conveyor-borne pallets taught by Baker because Baker teaches that the use of pallets as templates for cutting and transporting evenly-sized tiles.

Regarding **claim 40**, all the claimed steps and structural limitations are addressed in the rejection of claims 1 and 37. Claim 40 essentially divides and rejoins the production lines. Duplicating any production line or track has an obvious result: it enables one to form that many more tiles in the same amount of time. Therefore, it would be obvious to one of ordinary skill in the art to duplicate tracks in the interest of time management if, for example, the formation phase takes longer than the vibration phase. It has been held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. See MPEP 2144.04 VI B, in re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

8. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Face in view of Baker as applied to claim 38 above, and further in view of Weisweiler.

Regarding **claim 39**, Face does not teach combining a plate with a conveyor belt. However, as discussed in the rejection of claim 1, Face teaches spreading a paste with a membrane that acts like the plate of claim 39. Baker teaches a conveyor, the conveyor sending paste under a plate (slipper, fig 3b part 79) such that the lower surface of the plate spreads the paste on the conveyor. Baker uses this method to

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make shaped or Roman tiles because it ensures uniformity of shape across the tile's entire length (col 1 ln 35-37). Finally, Weisweiler teaches spreading concrete (4:21-23) on green tiles to (4: 29-34) to make more robust roofing tiles (1:10-15). Therefore it would have been obvious to one of ordinary skill in the art to use Face's and Baker's spreading techniques to laminate tiles after Weisweiler because their teachings suggest that this would produce a smooth, color-fast, weather resistant roofing tile.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magali P. Théodore whose telephone number is (571) 270-3960. The examiner can normally be reached on Monday through Friday 9:30 a.m. to 6:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Magali P. Théodore/
Examiner, Art Unit 1791

/Christina Johnson/

Supervisory Patent Examiner, Art Unit 1791